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MONTHLY MAGAZINE

San Joaquin Power

1924

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RAISINS FOR THE WHOLE WORLD

Oct.-Nov., 1923 PUBLISHED MONTHLY BY THE SAN JOAQUIN LIGHT & POWER CORPORATION Price 10 Cents

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San Joaquin Power Magazine

IN THIS NUMBER:

PAGE
Frontispiece: Kerckhoff Power House - - - - - - 2
Pioneering Electric Power in the San Joaquin Valley - - - - - - - - - - - - - - By A. G. Wishon 3
Frseno Water Pure and Abundant - - - - - - - - 7
Life of Wooden Poles Prolonged by Creosote - - - - 10
Cow Boarders Must Be Eliminated - - By H. N. Carroll 13
"Most Romantic of Industrial Achievements" - - - - 15
Riggers Place Radio Masts on New Building - - - - 17
Editorial: Cotton - - - - - - - - - - - - - 18
Christmas Greeting - - - - - - - - 18
Fresno County, "Let's Go" - - - - - - 18
Politicians or Business Men - - - - - - 19
"Completely Equipped" - - - - - By Burton Braley 20
Artificial Rainfall Most Dependable - - - - - - - 21
Notes from the District Managers - - - - - - - 23
Among the District Reporters - - - - - - - - 25
Some San Joaquin Power Statistics - - - - - - - 32

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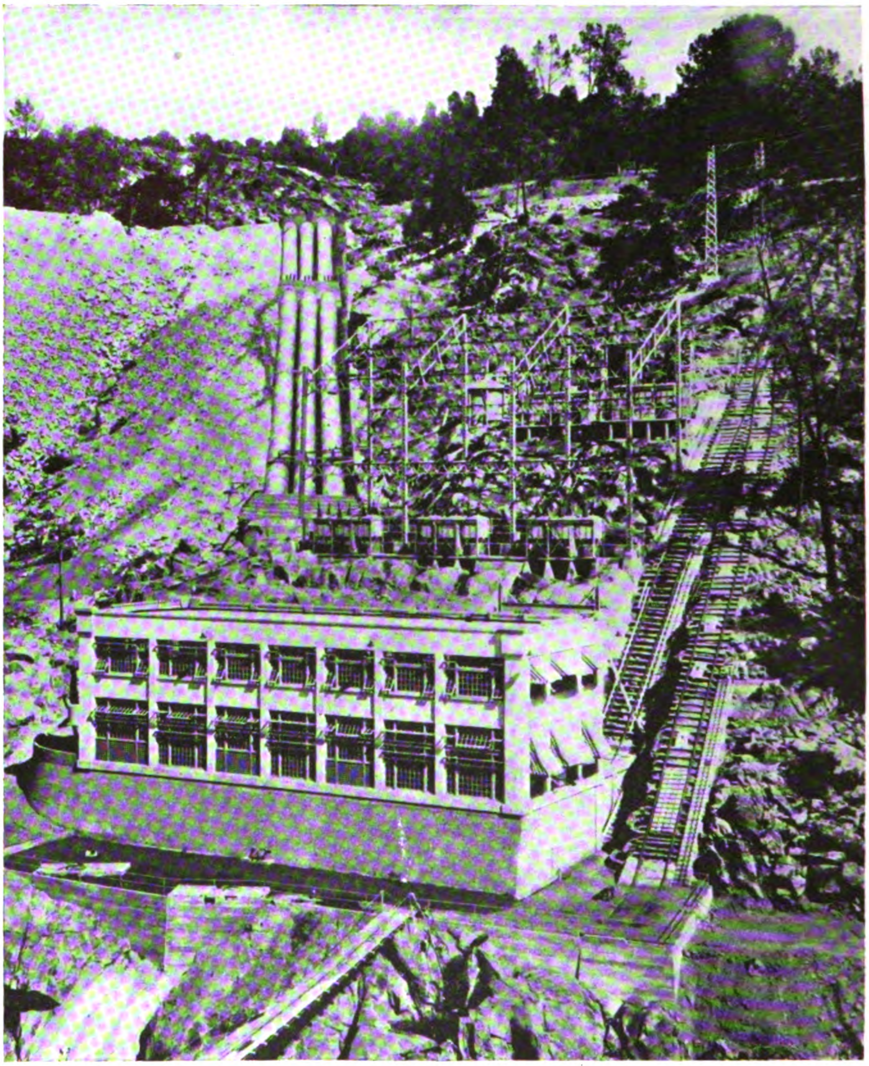


KERCKHOFF POWER HOUSE

Most important on the San Joaquin Power System in point of size and service is the Kerckhoff Plant on the San Joaquin River, forty miles from Fresno. This plant constructed in 1919 and 1920, consists of a diversion dam 125 feet high and 570 feet in length across the San Joaquin River, a tunnel 18x18 feet and 17,300 feet long, and a power house of 56,800 horsepower, in three units. The water is divided into three streams as it leaves the tunnel, being carried through steel pipes or penstocks eight feet in diameter to the turbines working under a head of 356 feet. The capacity of the tunnel is 1800 cubic feet per second. The Kerckhoff Plant was rushed to completion in fifteen months' time at a cost of $5,750,000.

Pioneering Electric Power in the San Joaquin Valley

Managing Director A. G. Wishon Tells His Own Story of Early Days of the Industry

CHAPTER III.

This is the third and last installment of A. G. Wishon's story of his experiences in the early days of the electrical industry. The preceding chapter closed with his resigning as manager of the Mt. Whitney Power Company, which had been his own creation. In the chapter here published is told the history of the San Joaquin Light & Power Corporation.

HAVING thoroughly "sold" myself on the assumption that power development was the one big thing California needed most (and this date was prior to the use of oil fuel), I sought the assistance of A. C. Balch and Wm. G. Kerckhoff, who had just built the San Gebriel Plant, the father of the Edison system. I arrived in Los Angeles in the morning and had a contract with them before 2 o'clock that afternoon.

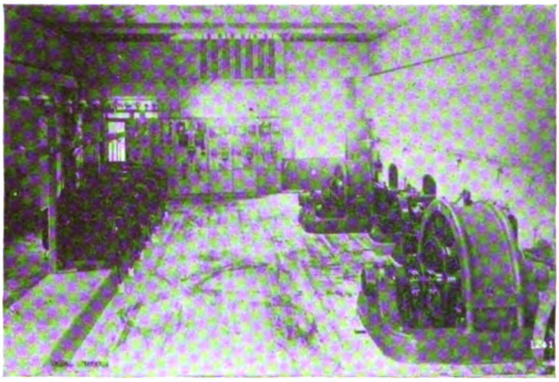
The old San Joaquin Electric company, operating the Fresno plant, was in the hands of a receiver and was for sale at an attractive price. Kerckhoff and Balch purchased this plant, taking charge of it in December, 1902. My job with the Mt. Whitney ended in September, 1902, and my management of the San Joaquin began as soon as they could get the transfer of all titles.

GAS COMPANY MAKES TROUBLE

The San Joaquin Electric company was built by Seymour and Eastwood, with the Fresno City Water company as the equity for financing. It was built on a "shoe string," cost little enough I assume, but too much for the business they were able to put on the plant. As soon as they started to take lighting away from the old gas company, the gas company (then under the management of our old friend, Fulton G. Berry) got an idea. There was no storage on the North Fork at that time and the summer flow was very small, so the gas company went up and purchased 480 acres on the ridge, between the North Fork and the South Fork, dug a ditch a mile or more long, took the water all out of the South Fork, and irrigated the sage brush, thereby depriving the power company of the water, as these lands were riparian to the river and entitled to the diversion. This shut down all the power in Fresno, the plant operating but six or eight hours every day, on such water as could be saved in the pressure reservoir, at the top of the pipe line. With the loss of this power income they were unable to meet their interest and operating charges, therefore went into the hands of a receiver. By the issuance of receiver's certificates, the receiver built the first earthen dam, where Crane Valley Dam now stands, with a wooden core wall of one-inch boards. The reservoir would hold, when full, 2650 acre feet.

Old San Joaquin Power House No. 1 built in 1896.

The life of the San Joaquin Electric was short and full of troubles. They lost all their power business, and it took me years to re-establish confidence in our ability to serve continuously. They had many accidents to their plant that were costly. When ready to start the hydro power house, the expert selected for that ardu-



Interior original Power House No. 1, 1,400 Horsepower.

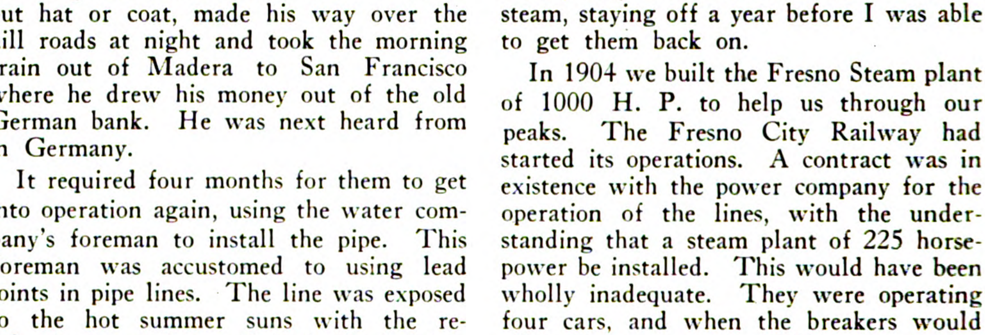
ous duty was a raw German electrical engineer, who could hardly speak our language. He forgot to put the nozzles on the pressure pipe, permitting a deluge of water to flood the power house floor. In the excitement, he touched the trigger of a quick acting valve and shut off the water instantaneously. This burst the pipe line, about 400 feet above the power house, and the rapid flow of water through the break collapsed the balance of the line to the top of the hill. After his error, the German engineer walked down the road without hat or coat, made his way over the hill roads at night and took the morning train out of Madera to San Francisco where he drew his money out of the old German bank. He was next heard from in Germany.

It required four months for them to get into operation again, using the water company's foreman to install the pipe. This foreman was accustomed to using lead joints in pipe lines. The line was exposed to the hot summer suns with the result the expansion pulled the lead joints apart. It became necessary to shut down about once a month to repair some of the lead joints. One of my first jobs on the old No. 1 power house was to cover that line with earth except at the joints where we erected little dog houses to protect the pipe from the sun and to permit repairing the joints when necessary.

HANFORD SERVED WHOLESALE

H. G. Lacy of Hanford had built a line from Fresno to supply the town of Hanford, getting his power wholesale from San Joaquin. He was on a flat rate, and about the first thing I did was to put a meter on him and increase his bills from $400 to $1100 a month. There were not more than 100 meters in Fresno, and I sat along side of the cashier, who was the man in touch with the consumers, month after month, while we put on from 50 to 100 meters a month, as I was convinced this was the most equitable basis upon which to sell power. The Sperry Mill was our biggest load, and we had to be advised by them as to when they were going to start, so that we could prepare the power house to pick up their load. They were operating flat rate, and when I told them they would have to go on a meter, they demurred and went back to steam, staying off a year before I was able to get them back on.

In 1904 we built the Fresno Steam plant of 1000 H. P. to help us through our peaks. The Fresno City Railway had started its operations. A contract was in existence with the power company for the operation of the lines, with the understanding that a steam plant of 225 horsepower be installed. This would have been wholly inadequate. They were operating four cars, and when the breakers would all go out at once and all start at once, the lights of the city would become dim. We ironed out this trouble by having the odd numbered cars start first and the even


SAN JOAQUIN POWER CO.

Typical construction gang and camp of the San Joaquin Power Company about the time Mr. A. G. Wishon took charge of the company.

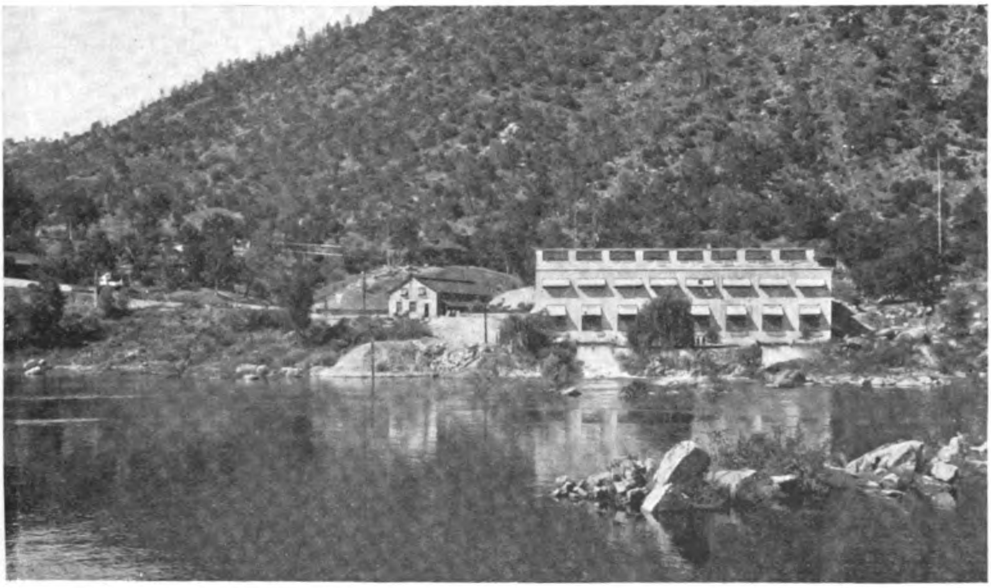
New Power House No. 1, 21,333 Horsepower.

numbered cars start five minutes later. In 1906 we bought a secondhand Union Iron Works upright engine that helped us through the peaks for about two seasons. Finally, one of the cylinders exploded and went out through the roof, fortunately killing no one. In 1907 we built old No. 3, constructed a second line from the mountains, and extended it to Madera, Selma, Fowler, Kingsburg, Dinuba, Reedley, and Corcoran. In 1908 we extended to Sultana, Orosi, Woodlake Valley, Lemoore, and Coalinga.

EXTENSION DEVELOPMENTS IN 1910

The San Joaquin Power Company was capitalized for $800,000 and in 1906 we capitalized the San Joaquin Light & Power Company for $3,000,000. In 1910 the San Joaquin Light & Power Corporation was capitalized for $25,000,000, which has since been increased to $150,000,000. We purchased and tied in the plants at Merced and Bakersfield, ran our lines to Coalinga, Midway, and the Kern River Oil Fields, McFarland, Wasco, Lerdo, and on the north to Chowchilla and other points; completed the Tule River Plant and our East Side 60 KV line from Copper Mine to Bakersfield. This was a big year for San Joaquin Power.

When we took over the Bakersfield Power Transit and Light Company the auditor and head bookkeeper was a promising prospect, and we told him we would like to keep him. He soon tendered his resignation and gave me reasons that did not appeal to me. I got one of our friends in Bakersfield to interview him, solely to find out his real reason for quitting. His statement was that we had doubled the pay roll and were sure headed for bankruptcy. He believed the plant would not stand any more operating expense. I then went to him and told him that I was sorry he was leaving us; that the amount



New Power House No. 1 on the San Joaquin River, 40 miles from Fresno. The small building at the left was the original Power House No. 1.

of business that was being done was no part of the business we expected to do. Within two years we had spent over two million dollars in Kern county and had tied in a large amount of business at Maricopa, Taft, McKittrick, Kern River Oil Fields, and about 300 pumping plants for irrigation, amounting to several times the gross income of the Power Transit and Light Company in Bakersfield when we purchased the property.

NATURAL GAS CUTS OPERATING COSTS

We immediately brought in natural gas from the oil fields to operate a steam plant, first installing a 750 kilowatt unit, that was borrowed from the General Electric Company at Schenectady, while we were awaiting delivery on a new unit of 2000 kilowatts. This, we then considered, would put steam standby and peak capacity behind us. It was overloaded inside of a year, when we installed two other units —one 5000 and the other 6500. Later we installed a unit of 12,500 kilowatts. On account of the cost of piping the gas to Bakersfield, we built our Midway Plant at Buttonwillow, a short distance from the gas field, with 12,500 kilowatts capacity, and in 1922 we installed 15,000 kilowatts more in that plant.

LATE BIG DEVELOPMENTS

During the war period we built Crane Valley Power House, 1A and No. 2, and immediately after the signing of the Armistice, we started the construction of Kerckhoff, which was completed in August of 1920.

We began transmitting our voltage at 19,200, then went to 33,000, then to 66,000, and have the backbone of our system today operating at 110,000, which we consider high enough for the distances we have to operate.

In 1912-1913 we built across the mountains, through Coalinga, and tied in with San Miguel, Paso Robles, Templeton, Atascadero, San Luis Obispo, Arroyo Grande, Pismo Beach and Santa Maria. All of these places were operated by local steam plants, prices for service ranging from 12c to 16c a K. W. H., with night service only. We increased the gross revenues over there, from that day to this, from about $200,000 a year to about a million dollars a year. The income over here was increased from $126,000 in 1913, to nearly $7,000,000 in 1922.

I had the privilege of operating about the first power plants for irrigation in America. Today we are supplying power to about 5000 of such plants, operating about 6000 miles of line. The towns grow in proportion to the development of the back country, and it has always been the policy of the San Joaquin to look carefully after the development of the back country, so that the industrial business of the towns will keep pace.

RESULT OF LOYALTY AND EFFICIENCY

The detailed story of the San Joaquin's development is probably paralleled by the development of all the other great power systems. I can not give you the details of their developments, but I have lived to see them all grow to their present wonderful condition and usefulness. And back of all this development is the loyalty and efficiency of the technical men who helped us do it. If there is any manager that has the simple notion that he, himself, is responsible for this achievement, he should be told that his greatest achievement was the selection of those who have made all of these wonderful things possible. We say to our organization, "You do the work and leave to us the worrying about the job. That is your job as long as you are efficient, and with it comes that measure of loyalty and increased efficiency that makes the effort worth while and the business successful."

DO YOU KNOW?

That you are a salesman no matter whether you want to be or not? Every minute you are awake you are selling your company to the public. They are putting you on the scales, and if you balance them it means your company is benefited. You —it makes but little difference in which department employed—distinctively represent the company as a salesman. "Selling" to the public is a battle, and only fighters can win out in it. It takes courage to go up against the "complainer"—but to make him a friend of the company requires the right sort of salesmanship. If you don't you'll strike out every time you come up to bat, and score nothing higher than a string of goose-eggs.—Texas Utility News.

Fresno Water Supply Pure and Abundant

Paper Read by E. K. Barnum, Fresno City Water Company Engineer, Develops Interesting Facts About Water Supply

THAT Fresno City's domestic water supply is practically inexhaustible, that the water is free from all surface contamination and passes every test of purity, and that everything possible is being done to make the pumping and distributing systems modern and efficient, were the points stressed in a paper delivered before the convention of the California Section of the American Water Works Association recently by E. K. Barnum, engineer of the Fresno City Water Corporation.

The paper opens with a brief historical description of the local system, taken from a report made by the J. G. White Company in 1911. This report says:

> "The property is the result of a process of development following to a considerable extent the growth of the city of Fresno. The physical plant of today (1911) adequately serves the community and, by the rather unique arrangement of pumping plants, pressures are well equalized. The quality of water has been passed upon by competent authorities and is said to be excellent."

FRESNO POPULATION FIGURES

It is then set forth that at that time the system operated nine motor-driven plants with a combined capacity of 595 horsepower and located with due regard to community requirements. The distribution system included 68.2 miles of pipe three to twelve inches in size, supplying approximately 4,500 services. Engineer Barnum sets forth that the population of Fresno in 1911 was about 30,000, which means an average of 6.67 people per service, and about 66.2 services per mile of main installed. Today's population is estimated at 69,000, this figure being based on the entire area served by the water company, or approximately six square miles. There are now being operated 27 pumping plants, having a total capacity of 33,440 gallons per minute against the total head of 140 feet or 48.15 million gallons daily.

INEXHAUSTIBLE SUPPLY

The practical inexhaustibility of the water supply is dealt with by a quotation from a report by Messrs. Mendenhall, Dole and Stolber. This report discusses the water supply of the entire valley, which Barnum shows by his maps and tables is centered largely as far as volume is concerned in the territory lying between the San Joaquin and Kings Rivers. The general slope of the percolating water is in a south-westerly direction and represents

Type of bungalow pumping plant erected in residential districts by Fresno City Water Corporation.

the normal course of movement of the underground waters towards the floor of the Valley. Says the Mendenhall, Dole, and Stolber report:

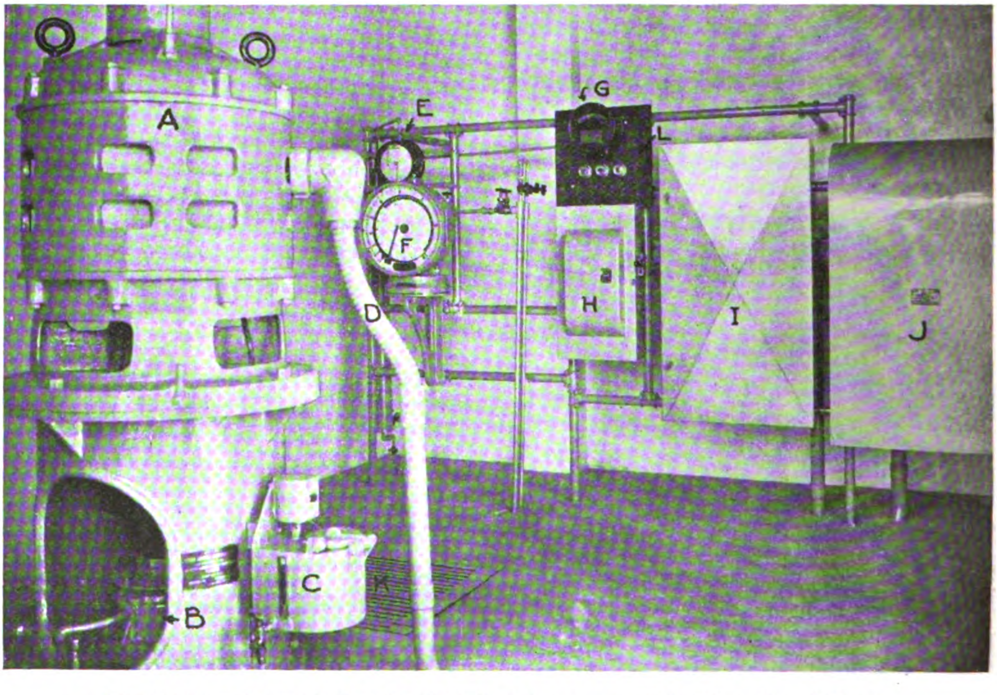
> "The area of the valley is 11,500 square miles. The depth of the sands and gravels, which are saturated with the ground water, is probably not less than a mile at the maximum and maybe much more. The average depth is equally unknown, but wells one thousand feet deep, or even more, are scattered throughout the Valley, and do not reach the bottom of the unconsolidated sands and gravels, so it may safely be assumed to be one quarter of a mile or more. At this depth nearly 3,000 cubic miles of sands, gravels and clays are saturated with ground waters and, if the porosity is 20%, the conclusion is reached that 600 cubic miles of water underlies the valley, certainly both a sufficiently conservative and startling estimate, but this includes water of all qualities, some not usable and some lying at great depths and not accessible."

FRESNO WATER PURE

Recent analysis of the water, as taken from different wells in the city, has developed that the water is practically free from turbidity, contains no bacteria, and is absolutely free from surface contamination.

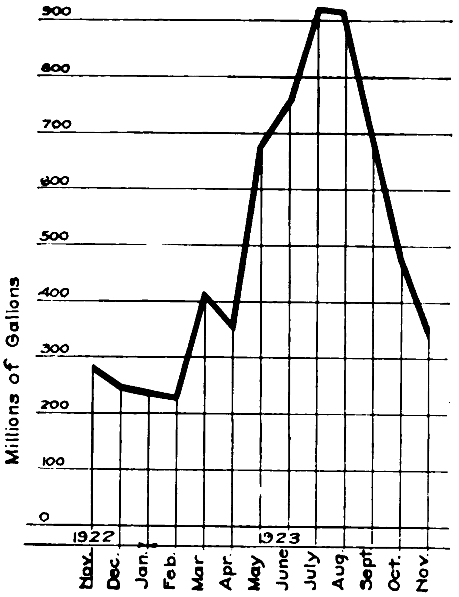
Each station is provided with combined recording and indicating flow-meter and bronze flow-nozzle, which is of the submerged orifice type. The records are collected daily and computation is then made, showing total discharge from each station, hours run, maximum and minimum discharge, and average gallons per minute per day. In addition each station is equipped with recording pressure gauges, automatic pressure governors, and watt hour meters.

Attention is called to the automatic pressure governors which allow the pump automatically to start and stop at predeter-



Interior of new Automatic Pumping Plant located in a new residential section of Fresno.

(A) Seventy-five horsepower verticle type motor superimposed on (B) three-stage Byron Jackson turbine pump having a capacity of 1600 gallons per minute. (C) Automatic oiling device for pump, operated by magnetic control. (D) Conduit for motor wire leads. (E) Pressure guage. (F) Flow meter to register amount of water pumped into mains. (G) Automatic pressure governor operates magnetic controls to start or stop pump at minimum and maximum pressures. (H) Switch operated by hand for manual control of the plant. (I) Electric meter box. (J) Automatic starting switch actuated by variations in pressure through pressure governor. (K) Manhole to valve on water main leading from pump. .(L) Main control switches and auxiliary switch for starting and stopping plant.



CURVE OF MONTHLY PUMP PAGE

Fresno water consumers used more than 900 million gallons of water per month during July and August of this year. The lowest consumption was during February when 204 million gallons were used.

mined pressure values. In other words, if the pump is idle and the pressure in the mains drops below say 30 pounds per square inch, the contractor operates, starting the pump which continues to run until the maximum pressure obtains say 50 pounds per square inch, when the contractor again operates, disconnecting the main line switches and stopping the unit.

Power for pumping is supplied by the San Joaquin Light & Power Corporation at 2200 and 4400 volts. In emergency power sufficient for the water works load can be obtained over four routes distinct and separate from those now utilized.

All stations discharge directly into the mains, no reservoir capacity being provided. Statistics up to and including July of this year show that the water company has 205 miles of distributing mains of all sizes, 65 per cent being between two and five inches in diameter, 32 per cent from six to eleven inches, and 3 per cent twelve and sixteen inches. Normal operating pressure in the mercantile district is between 40 and 45 pounds per square inch. The average length of pipe that can be put out of service by a single break in this district is about 925 feet. Up to and including September of this year there have been installed 17,200 services which on the basis of 69,000 population, reduces to approximately 4 persons per service.

Metering in Fresno has developed slowly, the policy of the management being to encourage the use of lawn sprinkling, to beautify the residential section. This, of course, accounts for the high consumption per capita which amounts to 15,000,000 gallons daily, or 221 gallons per capita.

The following statistical table concludes the report:

Population of Fresno	69,000
Number of services on system	17,260
Inhabitants per service	4
Number of services per mile of main	84.2
Maximum use per service per month (gallons)	55,269
Minimum use per service per month (gallons)	14,091
Estimated average annual consumption per service per month (gallons)	26,117
Investment per service	$105.00

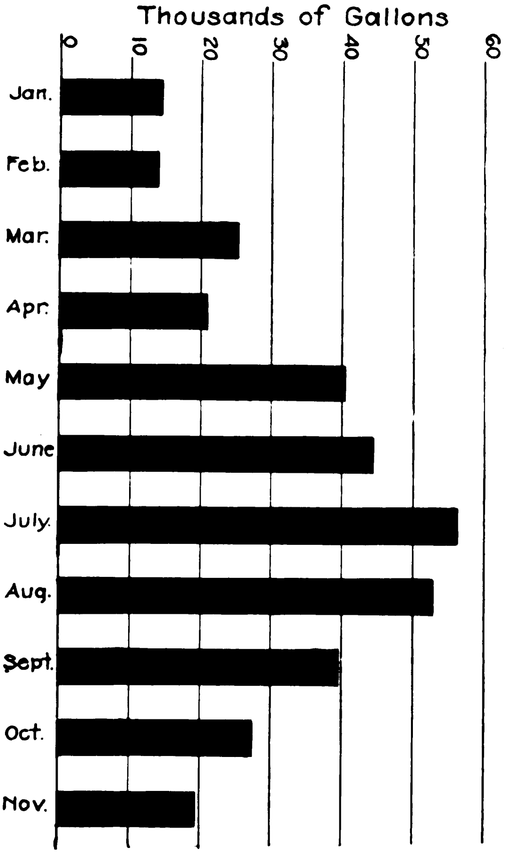


CHART SHOWING GALLONS PUMPED PER MONTH PER SERVICE

This graph shows the average number of gallons per service used per month during eleven months of 1923. It may be seen from this graph that the average service used 14,000 gallons during February and 56,000 gallons during July.

Life of Wooden Poles Prolonged by Creosote

Twenty-five Thousand Poles Receive Preservative Bath at San Joaquin Power Pole Yard Each Year

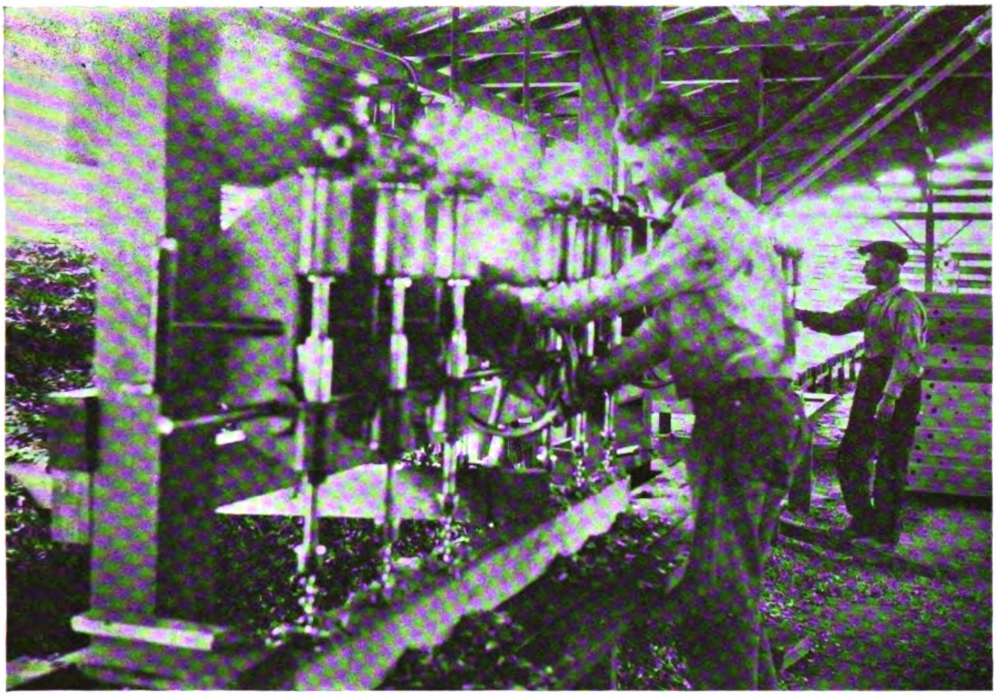
AT the present rate of development the San Joaquin Light & Power Corporation is using about 25,000 wooden poles a year. And this number is increasing each year as lines are extended and the demand for more power increases with the rapidly settling communities of the San Joaquin Valley. Replacements of poles that have rotted to a point where they are no longer safe will also require thousands of new poles each year.

Any system of treatment that will prolong the life of the poles that go into the lines each year means a large saving in the aggregate. Close study of this problem has shown that hot creosote applied to the poles gives the most satisfactory results, showing by test that poles last from seven to ten years longer when treated with creosote than in natural state.

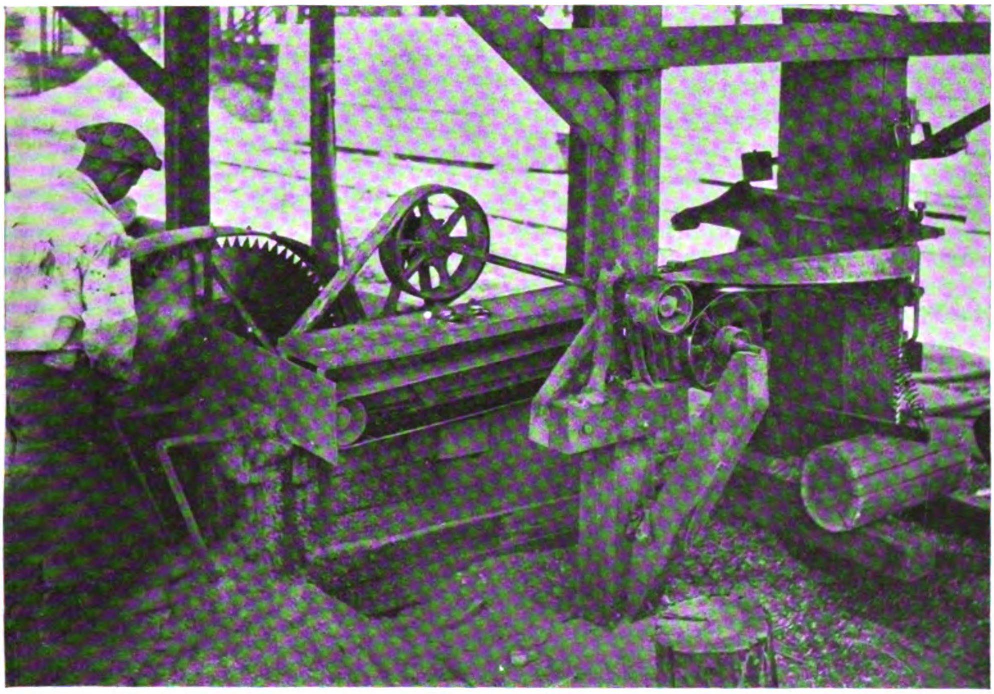
The most efficient and economical method of treating poles has been the subject of much investigation. Puncturing the surface of the wood to permit greater penetration of the creosote has been tried, but San Joaquin Power engineers are not convinced that the puncturing process is worth the additional cost, so this method is not used. Before a pole is soaked in creosote it must be thoroughly seasoned. From three to five months are required to put a pole in prime condition for the creosote bath.

The first creosoting plant of the San Joaquin Light & Power Corporation was erected in Fresno in 1911 by W. R. Wheaton. The open tank treatment used at that time has been followed with but little change in the method of handling and heating the creosote. Originally the steam pipes used to heat the bath were placed in the bottom of the tank. It was found that the bark and shavings from the trees insulated the steam pipes to such an extent that the efficiency of the heating was reduced. The pipes were then placed around the sides of the tank with better results.

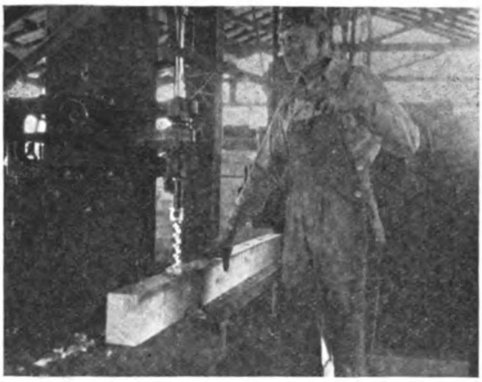
A view of the San Joaquin Power Pole Yard during the peak of the season when the yards are being stocked with poles for drying. More than 20,000 poles were stacked in the yards when the picture was taken.



The cross-arm boring machine which bores from one to six holes at one operation.



Saw mill for cutting anchor slugs. The boring machine is attached to the post at the right. A slug is under the clamp ready to be bored.



Old method of boring cross-arm holes requiring considerable time and not as accurate as the improved method shown on opposite page.

From twenty to thirty-five poles are placed in the tank at one time and soaked in the creosote bath at a temperature of 180 degrees from one to three hours. The poles are then lifted out of the tank to a draining board where they stand for several days until sent out to be installed or placed in stock.

At the pole yard of San Joaquin Power from 9,000 to 12,000 poles are carried in stock to permit proper seasoning. These poles are of Western red cedar coming from Oregon, Washington, and British Columbia, being cut during the summer and fall months. The average age of these is twenty-five years at the time they are cut.

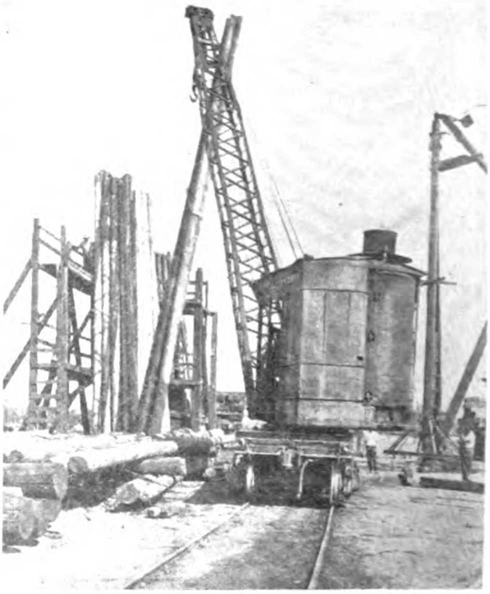
Owing to favorable climatic conditions in the San Joaquin Valley, San Joaquin Power uses more wooden poles than is the practice of other large companies. San Joaquin Power is the only company transmitting power at 110,000 volts on a wooden pole. These high tension lines follow roadways and private rights-of-way for more than 1,000 miles throughout the San Joaquin Valley and across the mountains to the Coast counties. Steel towers are used only in the more exposed sections where wind or storm damage make wooden poles impractical.

A new industrial site and pole yard is now under construction for San Joaquin power on a 40-acre site near Fresno, which is expected to be in operation February 1. The pole treating plant at the new site has been placed in operation and future supplies of poles will be drawn from this new plant, after the supply of poles stacked in the old pole yard has been exhausted.

In the new plant a modern cross-arm mill has been built that will greatly speed up the production of cross-arms. The boring machine for making the holes in the cross-arms was built in Fresno from designs made by W. J. Bush, foreman of the yard. By the old method the boring of holes in cross-arms was done by means of a single bit drill press, the cross-arm being moved to a new position for each hole. Even with the most expert operator, the holes varied in position, while the method consumed much time. With the improved boring machine, the cross-arm is placed in a guage and all holes are bored at one operation, to exact measurement within one-thirty-second of an inch.

Another machine developed by Bush is the saw mill for making anchor slugs. An anchor slug is part of an old pole sawed to lengths of two feet and boiled in creosote. A hole is bored in the center through which a bar of iron is passed and which is attached to the guy wire.

A detailed description of the new industrial site will appear in the San Joaquin Power Magazine in a future issue.



A steam crane is used to lift the poles into the vat of creosote. Three to five poles are handled at once by this machine.

Cow Boarders Must Be Eliminated

Testing Associations Are Compared to Careful Bookkeeping of Successful Banker. Herds Easily Improved

By H. N. CARROLL

WITH the state of California importing 25 per cent of its required dairy products, the dairy cow presents an excellent opportunity of diversifying the agricultural activities of the San Joaquin Valley. There seems to be a prevalent opinion among fruit growers of this valley that there is no place for the cow on their high-priced lands. Examination of the facts show that on the other hand they can hardly afford not to have a few cows, and that every day and every year they are without cows they are not only depleting their lands of a certain percentage of fertility, but are losing the check each month that would go a long way toward paying their overhead expenses.

This does not mean that our fruit ranches should be converted into dairy ranches, for fruit growing is and perhaps always will be our first agricultural industry. But it means that there is a place on practically every fruit ranch for from two to twenty dairy cows. And there is no doubt that these cows would not only pay the overhead on the ranch but would increase the quantity and lower the cost of fruit production.

FERTILIZING AIDS PRODUCTION

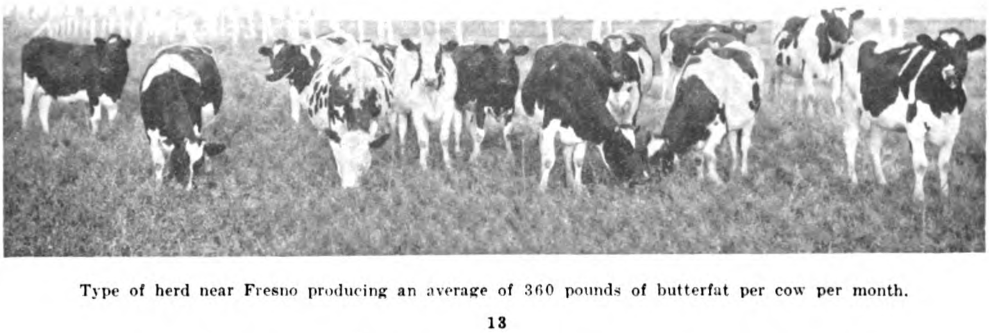
It is estimated by the experts that a cow will in a year produce 12 tons of manure. It is impossible to calculate exactly in dollars and cents what the benefits of this fertilizer would be; but every rancher knows it does mean greater production and the replacement of fertility being annually drained from the soil by the growing of the same crops year after year.

It is generally conceded among dairymen of the San Joaquin Valley that it requires an acre of alfalfa to feed a cow if the cow is permitted to forage for her own food in the field. But if the alfalfa is cut and fed, the green alfalfa or hay from one acre should feed at least two cows. The average profit on an acre of alfalfa after the first year is estimated at approximately $48. But by feeding to cows and converting into milk a profit of $100 per acre is being shown for this crop. The difference between $100 and $48 per acre is $52.

COW TESTING ESSENTIAL

Quite a neat sum that, but it cannot be done with scrub cows. It costs as much to fed a scrub as it does a good cow and that cost is variously estimated at any place between $100 and $150 per year. The average, or $125, would be the equivalent of 250 pounds of butter fat at 50 cents per pound. In other words it requires 250 pounds of butter fat to pay the cow's board bill.

The only way of determining whether the cow is a boarder or a producer is by testing. The farmer keeping dairy cattle needs a cow testing association just as much as the banker or merchant needs to keep a set of books. The day is coming when dairymen will no more think of keeping cows without keeping records than a



Type of herd near Fresno producing an average of 360 pounds of butterfat per cow per month.

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banker will think of loaning money and trusting to his memory and luck to collect interest.

ONE MAN'S ACHIEVEMENT

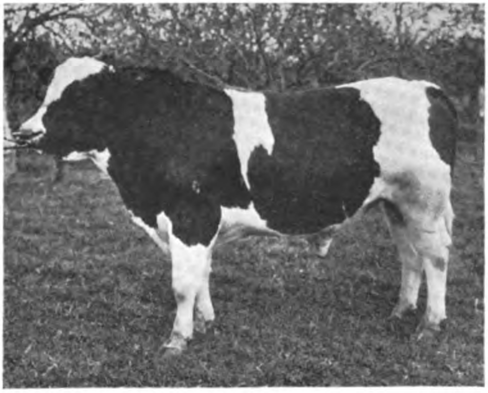
In every human endeavor it is intelligent effort only that pays, and the cow testing associations are making possible the application of intelligent effort in the improvement of dairy herds. One man in Humboldt county, starting with grade cows and using pure bred bulls, has increased his butter fat production 122 pounds per cow in nine years. His herd record follows:

1914—60	cows average	282.00	lbs butterfat
1915—62	" "	307.00	" "
1916—62	" "	311.58	" "
1917—60	" "	316.57	" "
1918—60	" "	379.44	" "
1919—52	" "	395.20	" "
1920—56	" "	385.00	" "
1921—52	" "	396.00	" "
1922—52	" "	404.30	" "

There is a wonderful field in the San Joaquin Valley for the production of dairy cattle for breeding stock, as state statistics show that California has only 2½ per cent of the registered Holsteins in the United States; yet cows in this state hold more than 23 per cent of the world's records in various classifications of the production lists of the Holstein-Friesian Association of America.

CALIFORNIA COWS LEAD

This record together with the fact that cows in California have green feed approximately ten months of the year and that less of the food is required to keep the cow warm account for the following statistics showing California cows as being the best milk producers in the United States:



Registered Holstein bull on Frank Helm Ranch near Fresno which has sired many fine cows for his herd.

ANNUAL YIELD OF MILK PER COW

State	No. of lbs.
United States average	3,412
Iowa	2,709
Illinois	3,044
Minnesota	3,044
Michigan	3,965
Pennsylvania	3,990
Wisconsin	4,016
New York	4,317
California	4,610

Year after year it becomes necessary to practice more extensive agriculture. With the division of Western ranches into farms the dairy cow is more and more making a permanent place for herself in the present system, because she produces more human food per acre than we can raise by any other methods, and removes a smaller percentage of fertility from the land for that production. And it must always be kept in mind that in no place in this country does the dairy cow do better than in California and the San Joaquin Valley.

ELECTRIC SERVICE IS NOT RESPONSIBLE FOR FIRES

In a recent study of fires alleged to be caused by electric service, the Industrial Accident Commission in a report made by Reginald, engineer for the Society for Electrical Development, says in the California Safety News, "Falling in the same category as the fires due to leaving electric irons connected, there were 15 instances of fires attributable to gross carelessness, the commonest blunder being to throw a curtain of inflammable fabric over a lighted lamp. Some of the 15 fires were due to quite as reprehensible acts on the part of electrical workmen, but in all cases the fires were due to acts of carelessness for which the use of electric service can not be held responsible."

The stock sales department will have a happy New Year only if the quota of sales it has set for 1923 is reached by that day. Are you going to sell another share or two?

Living costs in the United States are today 71 per cent higher than in 1913. This is exclusive of electricity, which is 5.1 per cent lower now than ten years ago.

"Most Romantic of Industrial Achievements"

Harnessing of Water to Do Man's Bidding Probably the Largest Construction Job in Entire World, Writes Albert W. Atwood

THE transformation of California's mountain blizzards and torrential spring floods into a colossal electric machine, wasteless, continuous and for all practical purposes perpetual, is dealt with by Albert W. Atwood in the Saturday Evening Post of December 1st in an interesting article captioned "The Great Snow Machine." It deals largely with the operation of the San Joaquin Light and Power Corporation and with personalities familiar to San Joaquin Valley residents, among them being A. G. Wishon, A. C. Balch, and William G. Kerckhoff, the pioneers of the San Joaquin Company's development, and A. Emory Wishon, the company's general manager.

The harnessing of water to do man's bidding, declares Mr. Atwood, is one of the most romantic of industrial achievements. Yet in the case not only of California but of the whole Far West it is much more than romantic; it is the very life blood of existence. In the writer's opinion, nothing could be fairer than that Nature, having neglected to bestow the bounty of coal upon the West, should have compensated for the oversight by giving it the great possibilities of electricity.

LARGEST JOB IN WORLD

"California is engaged in a ceaseless effort to harness her mountain waters," reads the article. "Already this essay on her part has assumed the proportions of what is probably the largest construction job in the entire world. Already the state is neck and neck with—or perhaps even leads in the amount of hydro-electric power developed—the state of New York, with three times the population and the obviously unique falls of Niagara. Already the average resident of the Far West uses about twice as much electric current as those of most, if not all, other sections, while as far as the agriculturist is concerned, more power is used on the farms of California—for pumping irrigation water—than on all the rest of the farms of the country combined."

Mr. Atwood points out that the development of hydro power in California involves almost staggering expense. It needs almost endless series of artificial reservoirs, dams, tunnels, power houses, and transmission lines. And he also emphasizes that the power companies must always have in reserve expensive steam plants, operated by oil or gas fuel, to take up the slack in short water periods, or in seasons of drought, and to be ready to render service in any emergency. He lays great stress upon the economic saving from power development, pointing out that energy generated from the fall of water consumes nothing. Unlike wood, coal, and oil, there is no using up, no wastage, no diminution, no exhaustion of Nature's resources.

POWER MUST BE AVAILABLE

"The mountains," says Mr. Atwood, "always remain intact for the unimpaired generation of power, and the waters can then be re-used on the lower levels for domestic, agricultural and industrial purposes. Indeed, the more the latent power is developed the more water there will be for the habitable regions below. The inevitable result of the development of power is a conserved and equalized flow of water for the farmer.

"Unless power is available at the right time," reads the article, "growth cannot take place, and the very act of supplying it stimulates still further the reclamation of land, the influx of population, the erection of buildings and the development of new industries.

"A. Emory Wishon, general manager of one of the companies which serves the great central valley of the state, has worked out tables which show exactly what any given amount of new power means to a community. The application of these figures has come to be known as Wishonizing, and it is a cheerful occupation for a country which seeks filling up. It is an effort to think of electrical development not in technical or scientific terms but in those of lands, houses and people.

POWER CREATES WEALTH

"Such figures start with farms, which must be irrigated and are commonly cared for in the central or San Joaquin Valley by means of electrically driven pumps. On each farm there is at least one house, and one house in the country means two in the town. That means offices, stores, banks, factories, schools, churches, roads, street and interurban lines, additional steam railway facilities and civic improvements. It is estimated in this fashion that the total power development now contemplated in the state will add, or rather will mean or be accompanied by an increase of something like $8,000,000,000 of wealth.

"The generation of electric current on a large commercial scale is, after all, a relatively new thing. Whatever conditions in the rest of the country may have been, the founders of the big companies in California admit freely enough today how ignorant they were in the 90's. They had little experience to go by, no technical knowledge to speak of, and hard financial sledding.

"Population was small and there was of necessity only a small demand. A. G. Wishon, a director of one of the larger companies and one of the early managers, told the writer that he spent an entire day in the infant state of electrical development trying to persuade a store proprietor to put in six electric lights, the same store now being lighted as a matter of course with 500 bulbs. In twenty years the gross earnings of Mr. Wishon's company have increased nearly sixty-five times.

"We were a fine lot of experts when this thing started," he said; "we didn't even know what the commonest technical terms meant."

S. P. ELECTRIFICATION PLANNED

One of the most interesting sidelights touched upon by Mr. Atwood is in connection with the late E. H. Harriman's plans to electrify the Southern Pacific system. The active man in the early financing of the San Joaquin Light and Power Corporation was its President, William G. Kerckhoff. Up until 1908 Mr. Kerckhoff was the company's only bond salesman. He took the bonds to his friends, and when they refused to listen to him he pretended to be deaf. We finally interested Harriman in the idea of electrifying the Southern Pacific system, and after long negotiations which gave promise of favorable termination, made a special trip to New York for a conference with the great railway magnate. Harriman was about to leave for Europe, but promised to give the Western man an audience before departing. After three days of waiting, he was told to call at Harriman's home in the evening. The house was full of visitors, each waiting for a conference. At last he was given only a word, Harriman saying that he wished to spend the remaining hours with his family before sailing at daybreak. He promised to send a message. There was nothing for Kerckhoff to do but return to California. Not long afterward Harriman sent his message, saying he had practically decided to adopt electricity.

But he had gone to Europe with a fatal illness, and he died just a few days after his return. With him crumbled a great railroad empire and many a bold, daring plan for upbuilding the West of which the electrification of the railroad lines was only one.

RADIO COMPARED TO SEVEN LEAGUE BOOTS

Of all the inventions to shorten distance, radio ranks among the foremost. News of the recent Japanese disasters was broadcasted immediately to an interested world before news was obtained by wire. It seems strange that, by means of radio, the residents of Portland, Oregon, should know of California forest fires at Northfork fully as soon as the people of Fresno, but such was the case.

But by no means does radio convey only news of tragic nature. Every day it is the means of bringing enjoyment in to more and more homes. The magic of fairyland's seven league boots in no way surpasses the wonder of being transported to grand opera in Chicago merely by "listening in." Or, if one doesn't care for grand opera he can listen to the "tuck in" stories being told to sleepy-eyed Canadian children; or pick up the latest market quotations from San Francisco. There may be a lecture of interest in Salt Lake City, or a man may wish to know immediately the result of the football game or auto race on which he has bet his week's check. Sports may be followed move by move by means of radio.

As every fairy was equipped with a magic wand, so may every home be equipped with and enjoy the magic of radio.

RIGGERS PLACE RADIO MASTS ON NEW BUILDING

The placing of the two immense radio towers and sign supports on the new San Joaquin Power office building at Fresno was completed successfully by the Eagle Transfer Company of Fresno by means of some carefully calculated rigging.

Each tower is sixty-five feet in height and weighs approximately five tons. They are constructed of steel in three sections, the lower section being sixteen feet in height, the middle section eighteen feet and the upper section thirty-one feet. The towers are six feet square at the base and taper to twelve inches at the top. A gilded ball is mounted at the top of each tower. The bases are set on the ridge of the roof 174 feet from the sidewalk and the tip of the ball on the towers is 239 feet from the sidewalk level.

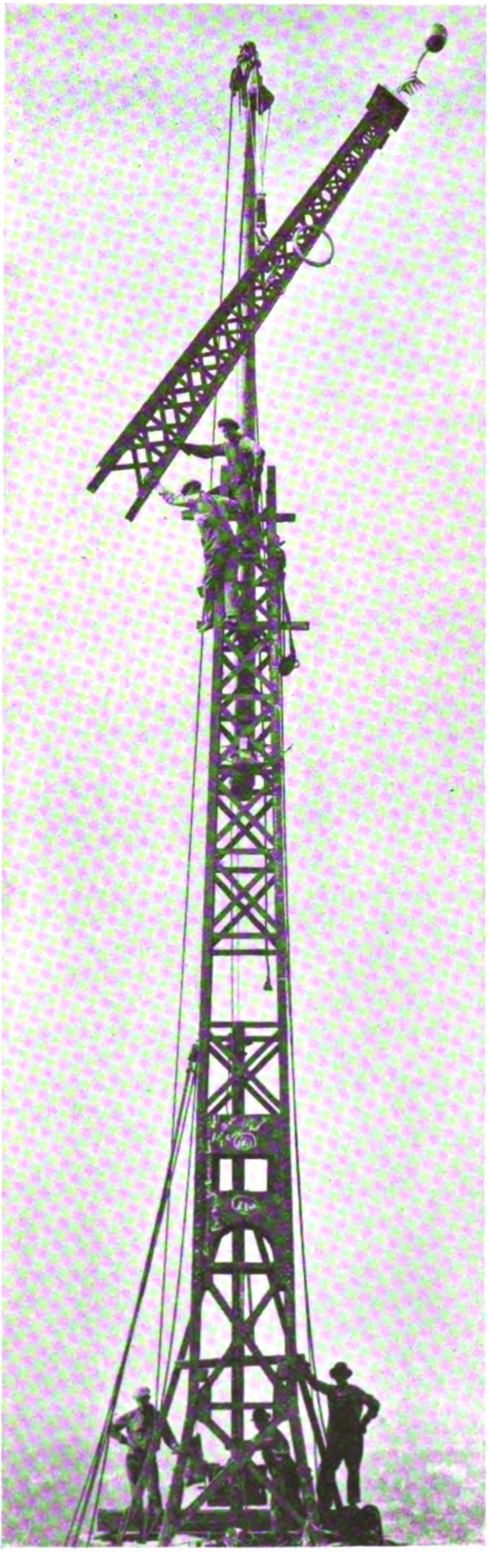
TOWERS ARE ENCASED

Ornamental sheet metal work encases the towers to a height of sixteen feet. The lattice work upon which the gigantic electric sign will be placed, will extend along the ridge of the roof between the radio masts.

The radio aerial for the broadcasting studio of San Joaquin Power station KMJ is suspended between the two towers by means of a flexible device operating on pulleyways to compensate for side-sway caused by wind pressure. The two spreaders carrying the aerial wire are counterweighted by a sliding weight in each of the towers, while the rebound of these weights is checked by pneumatic buffers.

The letters in the sign, extending along the ridge of roof, will be eight feet in height and it is estimated will be visible for twenty miles. The ornamental shields at the bases of the towers will be flood-lighted in colors.

The towers were constructed by the Burnett Iron Works of Fresno.



General agricultural conditions outside the wheat belt are somewhat better this season than last, a review by the Federal Department of Agriculture shows. The index of the purchasing power of a unit of farm products in terms of other commodities is placed at 72 as compared with 69 a year ago.

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San Joaquin Power
MONTHLY MAGAZINE

Published monthly by the San Joaquin Light & Power Corporation at Fresno, California, in the interest of the Consumers, Stockholders and Employees of the San Joaquin Light & Power Corporation.

AL C. JOY - - - *Editor and Manager*
SYDNEY W. GREEN - - *Associate Editor*

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COTTON

The San Joaquin Valley can produce cotton as fine as can be grown anywhere in the world. It can produce this cotton prolifically. And it does not need to worry over the boll weevil or other pests or diseases that constitute the greatest hazard of cotton growing in the Southern states. Furthermore, our cotton will command the top price of the market. Cotton prices are good now, and indications are they will continue good for several seasons. In fact, it is admitted that cotton production in the South is steadily falling off and new fields of supply must be found. Several million acres of Valley land are available for cotton growing. Here then is the opportunity for the developing of another great San Joaquin Valley agricultural industry.

These are the conclusions set forth in a recent newspaper article by A. G. Wishon, based upon a careful study of the cotton business by H. N. Carroll of our Sales Department.

Two years ago the men who planted cotton in the Valley netted small returns. Some of them tried no further. But others never lost their faith in the possibilities of the industry. They continued their planting, and they have been rewarded this year with rich returns, which give every promise of continuing.

Cotton is going to be a profitable crop here. It needs water to guarantee continued prolific yield, and electric pumping has solved the water problem in those districts not reached by gravity canals. Hundreds of thousands of acres of undeveloped land, ideal for cotton growing, lie under our power lines. All that is needed now to give us this industry on a big scale is initiative and vision on the part of our agriculturists.

Cotton growing here means factories here. We have the cheap power essential to factory operation. We need only raw material production to bring us the factories.

HOLIDAY GREETINGS

Christmas is here again, and the hand of good will is stretched out to all mankind. Behind it is a heart of sincerity. Somehow at Christmas time the spirit of brotherly love is in the very air; the earth, the sky, and all about us radiates it. Right now we forget worries and troubles and vexations, and find cheerfulness in cheering up our fellows. Life is happy for us as we do something to make others happy. That's why it is a pleasure to grip a friend's hand and wish him "Merry Christmas."

San Joaquin Power Magazine extends its hand to all its readers and greets them with the Yuletide salutation. Merry Christmas to all of you,—and we'll be merry indeed if you are.

A Happy New Year, too, to all. Never mind about 1923; it might have been full of mixed emotions, with some unhappiness tossed in. Yet here you are, and you still have your health, and you are still looking smilingly toward the future. This is no time to puzzle one's head over the future's problems. It is a time for today,—for enjoying the moment. So let's wish each other a Happy New Year,—and make it so.

"FRESNO COUNTY, LET'S GO!"

When the boys of the American overseas army had anything to do, their slogan of action was "Let's Go!" And with that cry they did it. The Fresno County Chamber of Commerce has adopted this slogan in its campaign for community development. Money is admittedly not as plentiful as it was two or three years ago. But we are merely in line with all the rest of the country in this respect, and we have a prosperous community, with abounding opportunities for making it more prosperous. It is up to our own effort. We can sit idly back and do nothing toward telling the world of our resources, or we can get together with the cry of "Let's Go!" and put across a constructive campaign of development. And this latter is what it is now proposed to do. Fresno's start in this direction should be an inspiration for the whole Valley. Every community should be participating in this sort of boost movement.

UTILITY SERVICE IS CHEAP

According to statistics recently obtained by the Society of Electrical Development a scientific estimate has been reached as to how the average man spends his earnings. Of his income 45 per cent is spent for food, 16 per cent for rent and taxes, 14 per cent for entertainment and charities, 12 per cent for clothing and 7 per cent for miscellaneous.

The manner of his expenditure of the remaining 6 per cent is interesting. Here is the cost of some of life's essentials:

	Per Cent
Electricity	1.03
Railway Fares	2.00
Gas	1.08
Water Supply	0.21
Telephone	1.26
Street Car Fares	0.43

POLITICIANS OR BUSINESS MEN?

Are politicians or business men better able, as a class, to direct the running of large organizations and enterprises? Read what E. W. Sells, head of the nationally-known firm of accountants, Haskins & Sells, has to say:

> "In my experience as a public accountant, I have had to do with the financial affairs, not only of practically all kinds of corporations, but with those of the government, states and municipalities. I have come in more or less intimate contact with many of the various officers and managers of all of them. It is based upon this experience that I have formed my judgment that the managements of corporations are generally honest, and, as compared with those of public affairs, more economical and efficient. There is far more dishonesty among politicians and officeholders than among corporation managers."

If business men are more economical, more efficient and more honest, taking them as a whole, than politicians, why should sensible citizens demand that more and more industries and enterprises, including railroads, public utilities, hydro-electric plants, be wrested from their owners and entrusted to the wasteful, inefficient, and dishonest management of political self-seekers? Our law-makers do not shine so brilliantly at their proper job, that of making laws, as to inspire in sensible citizens a great desire to clothe them with tremendously greater responsibilities.

—*FORBES.*

Most of the friction between electrical companies and the public comes down to lack of acquaintance. Get acquainted with the district manager, he will be glad to know you.

Irrigation has made the landowner prosperous and has created thriving cities from starving villages. It makes the future secure.

Kid Kilowatt has come into the house.
Kid Kilowatt is as still as a mouse.
Do you suppose that he means any harm?
No – he is here just to keep baby warm!
SAN JOAQUIN POWER
SAN JOAQUIN LIGHT and POWER CORPORATION

Completely Equipped

By BERTON BRALEY

Young Billy McGeehan loved Millicent Sheehan,
A smart and an up-to-date girl;
"Oh Milly," said Billy, "you're driving me silly,
My head and my heart's in a whirl,
And they won't be steadied until we are wedded;
So, honey, please answer me 'yes.'
For though I'm not wealthy I'm willing and healthy
And I can support you, I guess!"
"I'm not mercenary," said Milly, "—not very,
I don't ask for riches or gold,
But, oh, I am weary of housework, my dearie,
Which makes a girl dowdy and old;
I love you a heap, but I won't dust and sweep
Or wash till I'm dazed in the dome—
To marry this frail you must make enough kale
To have an Electrical Home.
A home in whose niches are outlets and switches
To which you can hitch what you please—
A washing machine or a vacuum cleaner,
Lamp—or a fan for a breeze;
Electrical heaters and omelet beaters
Whose product is lighter than foam,
I'll wed you with joy if you'll give me, dear boy,
A lovely Electrical Home!"
Said Billy, "Great Scott! but you know watt is watt
And you shall have all that you ask,
I'll give you enough electrical stuff
To aid you at any old task;
You'll never be tired, I'll have the house wired
From garret clear down to the loam;
So marry me now and I'll get you, I vow
A cozy Electrical Home!"
So Bill and his wife live an untroubled life
With every convenience at hand,
Electrical toasters and ranges and roasters
Make housekeeping "perfectly grand";
They're fitted indeed with whatever they need,
Their comfort and health are sublime;
Though I'm willing to bet Bill and Milly will get
An electrical go-cart in time!

N. E. L. A. Bulletin.

Artificial Rainfall Most Dependable

Irrigation in California Is Basic Industry in Which Everybody Is Interested. Santa Maria Valley Awakening to Necessity.

By D. D. SMALLEY, *Electrical Superintendent, Midland Counties Public Service Corporation*

ONCE upon a time the farmer figured that if it rained at the proper time he was assured of a good crop. If it didn't come to pass just as he had calculated, he blamed the weather for an unsuccessful year and hoped for better conditions next season.

The agricultural business has developed considerably since that time, and the modern farmer does not produce entirely according to the weather. If the rainfall does not suit him, he produces his own rainfall with a twist of the wrist or the push of a button, in exactly the quantity he desires, and at precisely the time it is needed, and he puts it on the particular piece of ground he wishes to cultivate. It may be said that farming is now a science and not a gamble, and the man who continues to dry farm cannot possibly compete with the farmer who has irrigation at his disposal.

There is an old saying that the good farmer makes two blades of grass grow where but one grew before, but with proper irrigation, three blades of grass can be grown where but one flourished before. It is conceded that irrigation is well worth while, and that production can be increased about as cited. The real problem therefore, is not necessarily to just increase production, for that is a simple matter, but the difficulty lies in producing the three blades of grass at a cost not to exceed that of one blade of grass, thereby leaving one-third full profit on the irrigation investment.

It has been said that if the unirrigated portion of the Santa Maria Valley were irrigated, the increase in production for the first year would amount to about $600,000.

There is no question that this can be done, but there is no particular reason for doing it if the cost of installing the irrigation is going to be so high that $600,000 does not represent a good rate of interest on the investment.

Many people say that irrigation from wells in the Santa Maria Valley offers a serious problem because the water table is quite low. Investigation shows that in the San Joaquin Valley every conceivable condition has been encountered and overcome, and there is nothing in the Santa Maria Valley that approaches the conditions found along the west side of the San Joaquin Valley. In that section, water has been developed in wells as deep as 1500 feet with lifts as great as 125 feet, and irrigation under these conditions has been found to be profitable. Wells in the Santa Maria Valley vary in depth from 50 to 300 feet; probably the greatest lift will not exceed 90 feet. It has been found that the average well throughout this section will cost $1100.00 and the necessary pumping plant approximately $3000.00. These figures are taken from existing installations which for the most part are large ones.

Getting back for a moment to the question of doing the irrigation at a profit, it has been found that in most cases the farmer tends to install too large a system. The ideal situation is one where the pumping plant is operated continually and the irrigating is done from storage. The pump, which handles sufficient water to irrigate the land directly, usually works a hardship on the owner because his investment is high and his overhead necessarily is great. If he is operating with electric power he is penalized on this account, and the same thing is true of any other power, because of what might be termed the idle investment. For example, consider a man on a ten-acre farm and suppose he installs a plant which will irrigate all of the ten acres in one hour. His investment cost per acre would be extremely high, and he would probably only operate the plant two or three times a month and during the balance of the time his investment is doing no work. How much better it would be if in a case of this kind, a small installation was made and a reservoir constructed which would store all of the water pumped over a period of twelve hours. In this case, the farmer would run his plant all night, find a full reservoir in the morning, and be able to put on the land the out-put of his plant for twenty-four hours, and at night his reservoir would be empty, completing the cycle. In this case also, his investment would be considerably lower and the irrigation could be done without any hired help. To sum up the whole situation, it is not a question of "Why Irrigate?" but "How to Irrigate." When a man realizes that he must irrigate his ranch, he should give a great deal of thought to the question of application. In most cases he will say to the pump man, "How big a pump can I get in this well, and how much water will it produce?" rather than "How little water do I actually need, if I get it continuously?" If the farmer will discuss this phase of the question with the representative of the pump manufacturers, he will find that the pump man is vitally interested in installing the most economical and efficient plant possible. Where a special problem is encountered, the pump man will always be found ready to manufacture a pump which will take care of that problem satisfactorily.

We must acknowledge that agriculture is the basic industry in California, and all of us, regardless of our business or profession, are most vitally interested, for hard times invariably follow crop failures. Realizing that irrigation is the prime factor in solving the farmer's problems it is therefore up to every organization and every individual to do anything in his power to promote this industry.

CRANES CAUSE "SHORTS" IN COUNTRY DISTRICTS

Rumor has it that a suicide club has been formed in the family of cranes residing in the neighborhood of Livingston.

Six of them have taken a short cut (or a short circuit) to eternity by flying into the 10,000-volt lines near the Livingston substation. All these casualities occurred during one week and within a distance of 1000 feet.

Two of six cranes electrocuted near Livingston recently by flying into the high voltage wires.

Cranes have a habit of flying at an elevation of 20 to 35 feet which brings them in range with the high voltage lines. The long neck and long legs together with the wing spread come in contact with the wires and cause a short circuit which kills the crane, and at the same time kicks out a switch or two on the line.

Many "bobs" in the service are caused by cranes flying between the high voltage wires. Occasionally a pelican, large hawk, eagle or a wild goose is the victim, but cranes seem to be the most common cause of the short interruptions in the rural districts.

Sometimes the crane does not drop to the ground at once and the short circuit continues until the body has been incinerated and falls free from the wires.

The relatively low price at which purebred livestock is now available has encouraged officers of several banks to take the lead in community drives for better livestock, say reports to the United States Department of Agriculture. Purebred animals are placed among the customers of the various banks, thus laying the foundation for herds and flocks of good quality that will be valuable assets to the community later.

Notes from the District Managers

High Spots of District Activities That Reflect Business Condition in San Joaquin Power System

FRESNO DISTRICT

PAUL B. WILSON, *District Manager*

Business conditions in the Fresno District show little change over last month. Increasingly optimistic reports are heard from various merchants, the majority reporting business in good condition. There seems to be no alarm over the raisin situation, the present sag in price being regarded as a necessary element for eliminating unhealthy tendencies resulting from abnormally high prices of the previous post-war period. A certain amount of deflation was expected and the wise ones are satisfied to take it soon as later. It is the general feeling that the bottom has been reached for raisin prices.

Our records continue to show an increase in the number of consumers in the city of Fresno and the Fresno District, while the number of applications for all classes of service continue to be made in well sustained volume.

During the month of October there were announced 161 residential lighting consumers and 10 industrial lighting consumers, making a total of 171. The average for 10 months of this year is 214.3 per month. The month shows an average of 43 less than the average for the preceding 10 months. The combination heating, lighting and cooking load increased by twenty consumers during the month. The average for the preceding ten months was 21.6 per month. During the month there were 13 new industrial power installations while the monthly average for the ten preceding months was 22.5. In agricultural power there were 3 new consumers added to the lines. The average for the year has been 4.8 per month.

These figures would indicate that the Fresno District is continuing to advance along with the San Joaquin Valley and the entire state.

A recent installation of which we are proud is the final signing up of the town of Academy. This settlement is one of the oldest in the valley and has always been in the "coal oil belt." Some active sales work secured a load of sufficient size to make the extension possible. One of the new consumers has a 14-kilowatt range and water heater installation.

Fresno is experiencing the most intensive building development in its history. The new 15-story Pacific Southwest building is towering into the air higher than any other building in the San Joaquin Valley. The new San Joaquin Power office building is rapidly nearing completion, while many other new buildings of importance in the downtown district have recently been completed or soon will be completed.

The investigation of complaints directly by our representative, George Hayden, has been satisfactory. We are getting expressions of our consumers' opinions, many of which are very gratifying. In cases of adverse criticism we work with the complainant until all criticism has given way and a fair opinion of the company has been developed.

DINUBA DISTRICT

HAZEN G. REDFERN, *District Manager*

Business conditions in the Dinuba District have a much brighter aspect than they did this time last month and we note an increased interest on the part of prospective consumers.

Two of the new loads which we have secured this month, are the Orosi Foothill Citrus Association for 32-KW heating and the Orange Cove Citrus Association 30-KW heating. These heating loads are for the purpose of sweating citrus fruits and are replacing the old method of heating by kerosene.

We have received applications this month for 78-HP for agricultural purposes. 105-KW cooking and heating and 28 light installations,. most of which are feasible.

A suggested program of road improvement embracing the Fourth Supervisorial District has been presented to the Chamber of Commerce for discussion and action. The fulfillment of this program will place Dinuba and its vicinity another step ahead in her already leading place among the ideal spots of California.

SELMA DISTRICT

J. H. JARNAGIN, *District Manager*

In the Selma District, business in general is beginning to pick up. Applications for new business were double the number received in the previous month and we are receiving more inquiries daily about electric heating, which seems to be gaining popular favor.

Kutner Goldstein Company have begun work on their new building at the corner of First and East Front Streets. They intend to heat their offices with electricity. Among consumers signed during the month for service are the American Legion in Del Rey which accepted service for an electric range and water heater, and Antone Johnson, of Kingsburg, who was served with an electric range and a heater for his dining room. L. H. Fish and D. Carlson, near Hardwick, were served with a 3-KW water heater and a 2-HP motor. Mrs. A. D. Smith accepted service for an electric range and water heater for her new home. Dr. H. W. Nielsen of Fowler, was served with a 6-KW room heater. U. G. Clifton near Caruthers, was served with an electric range and water heater. The Del Rey Water Works increased the size of their motor from 10-HP to 20-HP to meet the additional increase on their service. J. F. Carter, who owns a large dairy near Selma, signed a contract for a 10-HP motor to be served in the near future.

We have three line crews at work clearing infractions under G. O. 64, which work should be completed early in 1924. General conditions are about the same, everything being a little slower than last year, but we look for an increase in business within the next few months.

MADERA DISTRICT

J. E. BARRETT, *District Manager*

A new 4½-mile line extension to serve consumers with approximately 100 horsepower was completed November 15 in the Chowchilla District.

Merchants in the city of Madera have become interested in an electrolier system. The city trustees have taken up the matter, and it is believed that within a short time Madera will follow the example of other progressive San Joaquin Valley cities and install an improved lighting system.

In the city of Chowchilla, the new Hendrix building has been completed and most of the offices have been rented. The new Frizelle and Hanman building is reported about ready for occupancy. In the city of Madera, the new Stien building has been completed, and all of the offices have been rented. The foundation and first floor work on the First National Bank building has been completed and the sidewalks are being put in.

Service in the Madera District for the past month has been exceptionally good, little trouble having been experienced on either the transmission or distribution system.

Six crews have been working throughout the month clearing up infractions of General Order No. 64. One of these crews has been engaged almost the entire month clearing up infractions in the Coarse Gold, Knowles, Raymond, McGilvary and Ahwahnee districts.

NEW WINDOW LIGHTING EFFECTS ARE EXHIBITED

To make "window-shopping" more popular, the California Electrical Co-Operative Campaign has developed a show window in which is used the most approved lighting effects for showing merchandise to the best advantage.

This exhibit is made in the form of a portable show window, fully dressed with merchandise and illuminated with flood lights and spot lights to secure the most attractive effects. The demonstration was recently shown to 250 people in Fresno. A short lecture of thirty minutes was given during the demonstration.

The California Co-Operative Campaign is a non-commercial organization for the development of electrical ideas and for educating the merchants, manufacturers and the general public in the use of these ideas.

The lighting demonstration is on tour of the state and has attracted wide attention in San Francisco, Los Angeles and other cities where it has been shown.

This is the time to think of Christmas presents. Santa Claus favors electrical gifts, which come into daily use all year long and never fail to bring pleasant reminders of the giver.

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Among the District Reporters

"Just like a letter from home." Little news notes and gossip gathered here and there

MADERA

MARY DECHAINE, *Reporter*

At an employees' meeting held shortly after the Football Series was announced, Earl McCrory was chosen as captain of Los Trabajadores and Al Mulkey chairman of the Mutual Benefit Fund.

"Gracious, what's all the dust about?" gasped Pansy.

"Nothing," answered Francis, "just Bob and Frank cleaning out the vault." Whereupon the girls unanimously agreed that Bob DeChaine and Frank Hosler could certainly swing a wicked broom and also that next time a vault cleaning party loomed in the horizon, they would bring dust caps.

The only reason we can find for Shorty Mossman's new moustache is that he admired Mr. Barrett's so much that he had to have one of his own to admire. - - - (Lapse of two days) - - - Alas! Shorty's moustache was short-lived. He shaved it off because he claims he found some white streaks in it and didn't want his wife to think he was getting old.

The Kilowatts have held two happy meetings this last month. The first was to arrange plans for a farewell party to Mr. Boller and the following chairmen were named:

Entertainment, Al Mulkey; Eats, Millie Gordon; Decoration, Edna Lewis.

Frank Crosson was elected to the exalted position of collecting back dues from the members of the Club. Whether he used threats or just plain force will never be known. Be that as it may, he was certainly successful.

The second meeting was for the purpose of electing new officers for the coming year. Earl McCrory was re-elected president by a large majority. Earl is now not only at the head of the Kilowatts but is also leading Los Trabajadores in the Football Series. Ben Catching was elected vice-president. Mary DeChaine, who has been acting as secretary during Miss Wood's absence, was elected secretary, and Millie Gordon was elected treasurer. The Kilowatts are now in the best of financial health, thanks to Earl McCrory and Frank Crosson.

At Mr. Boller's farewell party, G. R. Koenig burst into sudden fame by showing us something in the way of reciting. We're going to enter him in the next contest that comes along.

We didn't get a chance to welcome Mr. Barrett the evening of the party because he was being given a farewell party in Fresno, so we want to do it right now. Welcome, Mr. Barrett! Make yourself at home.

The farewell party held in honor of Mr. Boller was literally a howling success. The hall was effectively decorated in orange and black, and as for eats! — Millie is still patting herself on the back. The main attraction was tamales (you see, we're living up to our name "tamale eaters") and Frank Hosler and E. R. Crawford made a new record for themselves in the art of tamale eating.

Then came the very interesting program, which Earl McCrory had prepared. At the finish, George Footman loudly cleared his throat and proudly swaggered up to the stage. In behalf of all of us, he gave Mr. Boller our best wishes for his future success.

"——— and now, in behalf of the Madera District, I wish to present to Mr. Boller, a small gift in token of our appreciation for all he has done for us" — and with a grand gesture, George expectantly turned around. Nothing in sight so George repeated the last paragraph of his speech. Still nothing in sight. Pause number one, followed by pause number two and a couple of coughs. At last, just when we thought George was going to die of stage fright, Earl McCrory and G. R. Koenig dragged in the present, which proved to be a beautiful mahogany rocker. The rest of the evening was spent in dancing and card playing. We feel like Pollyanna. Sorry to lose Mr. Boller, but glad of his success and glad that Mr. Barrett is our new manager.

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SELMA

H. H. YOUNG, *Reporter*

W. H. Case, chief clerk, has moved to 2204 Gaither Street, Selma, giving up the management of the Selma Hotel which he held until the present time.

The members of the Selma Power Club were entertained on the night of October 21st, with masquerade dance, given by the members of the Dinuba Power Club in the Masonic Hall building at Dinuba. An enjoyable evening was had by all who attended. Mr. Petcavage, meter tester, won the prize for having the best costume. He was garbed as a "Wild Woolly" and certainly looked the part. In fact, he looked very natural. J. E. Hammond, boulevardier of Dinuba, was awarded a prize as the best fox trotter. Hazen G. Redfern won the booby prize for the tackiest costume and in the opinion of all present, Hazen should have won the first prize. He was dressed as an old wash woman.

Six members of the American Legion Football Team are in the employ with the Company. They are: Bennie Tout, full back; "Pup" Hartley, half back; Harley Sells, end; Dick Hanan, guard; Claude Gordon, center; Carl Foster, tackle. These boys are all star players.

With the coming of cooler weather, tennis activities have been resumed and Selma challenges anybody for a game any time, any place and anywhere.

SANTA MARIA

CATHERINE TODD, *Reporter*

A. E. Ford, chief clerk, and family spent a very enjoyable vacation in the northern part of the State. Mr. Ford also attended the American Legion Convention held in San Francisco.

Wm. McElligott, formerly of Betteravia Steam Plant, has been transferred to Bakersfield, where he and his family will make their future home.

Chas. Parker is now employed as operator and watchman at Betteravia Substation.

Barney Ennis, who has been employed as lineman for a number of years, has left the employ of the Company.

W. B. Greeley has been given full charge of Santa Maria District and Division Storerooms.

Among the Fresno visitors during the month were A. M. Frost, M. P. Lohse, C. M. McCardle, E. P. Butt, E. A. Quinn, and S. B. Patterson.

The pet goldfish of the Santa Maria District Office were recently transferred to the substation lily pond. We are all proud of this beauty spot in the Sub yard.

SAN LUIS OBISPO LINE CREW.

Standing, Left to Right.—District Manager Chas. J. Kelly, P. S. Vaughan, M. Page, C. C. Dennis, E. E. Bryant, W. C. Wills, J. D. Flex, L. J. Vaudoit.

Kneeling, Left to Right.—J. Campbell, C. Chiesa, L. E. Scott, Clyde Dyer, F. Pohle, S. F. Platt.

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POWER HOUSE NO. 1

Alfred A. Higdon, *Reporter*

A delightful social gathering was held at Power House No. 1 on November 17. Owing to the limited capacity of the social hall here and to the unusually large crowd that was present it was necessary to issue checks to have the couples dance in relays. Four or five cars of guests from Northfork, as many from Kerckhoff, a good sized crowd from the road camp and ditch camp, together with the home folks, made a full house. Everyone reported having had a good time.

Mr. and Mrs. Elmer Gates have visited us several times recently. We are glad to know that they have not forgotten their old friends on the hill.

Charles Price, surveyor, and his helpers have been at Power House No. 1 for several weeks.

Friendly Pettys and his wife have come back to No. 1 from Kerckhoff Power House. He has taken over his old job as operator, taking the place of H. D. Chambers who recently left the company.

The camp carpenter and his helper are remodeling the bunkhouse into a dormitory. This will be appreciated by the single men in camp, who think that their new quarters will be among the best in the system.

Truck-driver Dick Smith and Operator Alfred Higdon spent a recent Sunday at the home of the latter near Visalia. The outstanding feature of the day was a duck dinner with trimmings.

A large ditch camp is being constructed on No. 1 Ditch, near the Midway Flume. Power House No. 1 will be shut down while the ditch is being enlarged.

Construction has at last begun on the new road to Power House No. 1. The work is being done by the Government with a crew of about 25 men at work. It expected that the work will be completed by February 1, 1924. The new road will mean a great deal to the people in this part of the hills, as it will have a grade of only 6%.

Alfred Higdon is the proud possessor of a Ford Roadster.

Fred White of Kerckhoff Dam recently purchased a radio receiving set.

DINUBA

Blanche Weddle, *Reporter*

Last month the Selma Power Club entertained the Dinuba Power Club, and if any one present did not have a good time it was not Selma's fault, as Selma surely has a lively entertainer, Howard Young. They gave us good eats and some jazzy music, and showed us an all around good time.

The Dinuba Prior Preferred Football League has been a little slow the last two weeks. But leave it to us, we are not always going to be slow. This week end Ione Carmichial, new business clerk, and Blanche Weddle, stenographer, are going to search all land lying between Fresno and Exeter and talk San Joaquin stock to everybody on the way. It is proposed to halt the trains as they go by if necessary.

A. G. Wishon, E. P. Smith, D. P. Mason, M. E. Newlin, Buford Babbs, S. B. Patterson, E. R. Banks, H. M. Carrol, and M. P. Lohse were visitors in the Dinuba District this month. We welcome all of them to our district.

Our chief clerk, Chester Adams, suffered the loss of his grandmother, Mrs. Martha Adams, who died October 15th after a prolonged illness. We extend our heartfelt sympathy to Chester and his family, with whom Mrs. Adams has made her home for several years.

Wilbur Macy, assistant chief clerk, was called to Long Beach Sunday evening, September 30th, on the account of the serious illness of his father, who died the following evening. Wilbur arrived at his parents' home just a few hours before the death of his father. Funeral services were held in Long Beach and the burial took place in Santa Cruz, October 4th. We extend our deep sympathy to Wilbur and his family.

MERCED

Luella F. Hayes, *Reporter*

Miss Marie Branco, lately transferred to the job and estimate department, became the bride of Charles M. Wilson, Jr., employee of the Standard Oil Company of Merced.

Graham C. Hayes of the construction department was married to Miss Evelyn Robertson of San Jose, at the home of the bride. Mr. and Mrs. Hayes are now residing at the Parkside Apartments in this city.

C. C. Gaiser is the proud father of an eight and one-quarter pound boy. We understand that in the due course of time Master Carol will take up his electrical studies in order that he may carry on the inspection work of his father.

M. A. Wood, our cashier, spent a weeks' vacation in the Bay District. While there, he attended the big game in California's new stadium.

Miss Agnes Knapp has been transferred to the Merced Gas Works, where she will resume her duties as stock ledger clerk.

Fred H. Drew has been employed as clerk in the Consumers' Department. Mr. Drew is a former employee of this district and we are glad to welcome him back.

Mrs. Lola Barrett of the Job and Estimate Department is leaving us this month. Mrs. Barrett has decided that it's lots of fun to keep house.

Ernest V. Wood has been transferred to the employ of the Valley Electric. We don't believe we will have much use for that new gas holder if Ernie boosts the kilowatt.

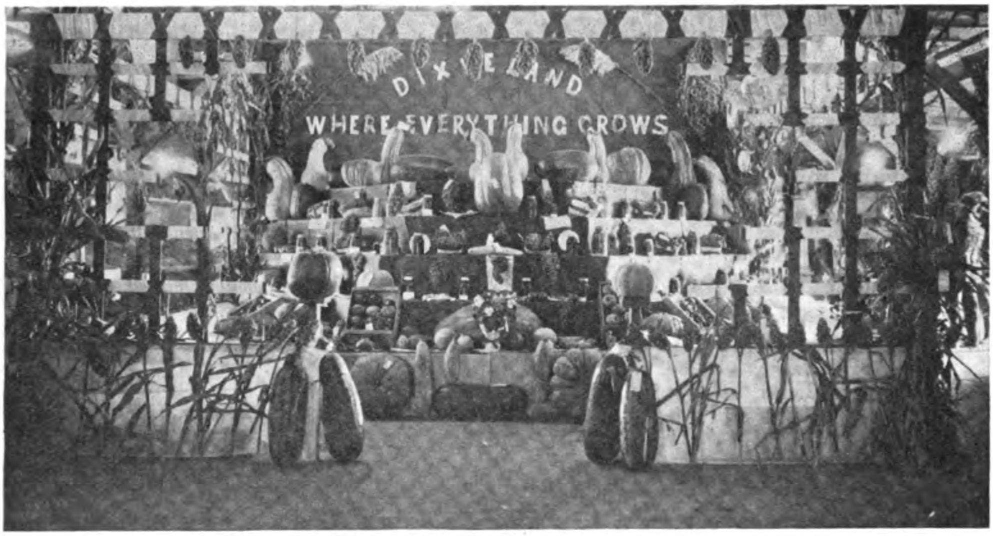
Charles Slagle has been promoted to foreman of the Merced Falls District. Mr. Slagle succeeds H. Glenn Wilkes, who resigned October 1.

A recent quail hunt on the famous Horseshoe Bend Ranch in Mariposa County on the Yosemite Valley Railroad 40 miles from Merced was organized and conducted by W. L. White, general manager of the railroad. Raleigh Casad, Merced District Manager, will be recognized as the first on the left. The other members in the party are (left to right) "Bill" White, Charles Shaffer and Dr. Mudd, all of Merced. No report has been received of what happened to the quail. The above is the "before" picture.

Miss Sylvia Azvedo has been transferred to Livingston, where she will take charge of the new office recently opened there.

John P. Hansen succeeds Fred Dewhirst who resigned as operator of the Livingston Sub. Mr. Hansen was formerly at the Le Grand Sub, which was closed down November 18.

The new gas holder of 100,000 cubic feet capacity under construction at the Merced Gas Works by the Western Pipe and Steel Company will be completed about January 1, 1924. This new tank will take care of the present and future gas needs of Merced for several years. Merced is one of three cities served with gas by the San Joaquin Light & Power Corporation, the others being Selma and Bakersfield.



The Dixieland exhibit at the Madera County Fair, held at Chowchilla, proved one of the most attractive booths at that collection of unusually attractive displays. The many products of this fertile section, including melons, grapes, stone fruits, berries, vegetables and grain, were tastefully arranged by Geo. Bump, Chairman of the Dixieland Farm Center Committee.

BALCH CAMP-KINGS RIVER

DICK DOWN, *Reporter*

Ted Salm, who has been time-keeper and accountant here for the past year, has been transferred to the Fresno office. L. A. Larson has been assigned to his place.

Dr. E. H. Hayden of Elko, Nevada, is visiting the Dr. J. T. Gardners. Mrs. Gardner is a daughter of the Elko minister.

Ralph Page, assistant hydrographer at Helms Creek, bagged the first bear of the season, using a revolver with considerable neatness. Page was cooking breakfast when he saw the bear meandering across the meadows. He exchanged skillet for revolver and headed Bruin off just as he was entering the timber. One shot from the .38 calibre Colts stopped the animal. The bear was a yearling and was estimated by Page to weigh 100 pounds.

W. H. Couse, chief construction accountant, was at Balch Camp early this month on a short business trip.

Fred Signet, steam shovel engineer, has returned from Los Angeles, where he went to receive special medical attention.

Mr. and Mrs. A. C. Balch, Los Angeles, A. G. Wishon and J. W. Jourdan of Fresno, accompanied by H. K. Fox, construction superintendent, and R. L. Bryant, resident engineer, made a trip during November over the road as far as Weir Creek.

CONSTRUCTION DEPARTMENT

H. H. RICHARDSON, *Reporter*

The "O" Street office had a series of interesting and instructive demonstrations and lectures in First Aid work, given by a representative of the National Bureau of Mines. George Taaffe was chosen for the victim at one of the lectures, and strange to relate next morning he was taken to the sanitarium, where he remained a few days. At first it was thought he had penumonia, but fortunately it proved to be acute stomach trouble instead. He is now back on the job again.

Bert Collins went to the coast over Armistice Day and spent the day with his daughter and grandson.

L. Gow, one of our star basketball players, had the misfortune to get a double fracture of his thumb during a practice game, which has put him on the retired list.

Miller Henderson of Dinuba paid a visit to the O Street office the 19th of November. The same day Chester Adams, also from Dinuba, called.

H. O. Tawney and Paul McCorkle are now fully recovered from the effects of the explosions in the O Street Sub on the 8th of November. Both of them had their eyes strained from the flash, and Tawney got a hand burned.

FRESNO

GARRETT VAN BUREN, *Reporter*

The Consumers' Department gave a farewell surprise party for Mrs. J. E. Barrett on October 30th Mrs. Barrett has resigned her position as clerk in the consumers' Department to take up her residence in Madera, where her husband, J. E. Barrett, has accepted the position of District Manager.

Those present included most everybody excepting their husbands and gentleman friends. At an early hour, Mr. Barrett was ordered away from home and the festivities went from then on. The evening was spent in story-telling and in playing games. Miss Elsie Geiger told the one about "The Traveling Salesman." At the opportune moment, Mrs. Barrett was presented with an electric waffle iron. Refreshments were served at a late hour,—everybody brought her own.

Miss Marie Harder spent Armistice Day in San Francisco. This was Miss Harder's first offense of this kind and she returned with a sore neck from looking at the tall buildings.

Loris Auld and O. D. Martin brought back some fish from their trip on November 11th. The trip was not unusual, but the fish certainly were. They both stoutly claim that they caught the fish themselves. Someone has suggested that the clerk in the fish store tossed the fish over the counter so that the facts of the case would not have to be stretched too far. The only thing that we are absolutely sure of is that they brought back some fish, whether caught, bought or swiped.

Miss Velma Clark, one of our pleasant telephone operators, is leaving Fresno to take up her home in New York City. We have heard that New York is also a good town.

Mr. and Mrs. Wm. Jacobs of the Consumers' Department went to San Diego to attend the Sciots' Convention. Mrs. Jacobs brought back a colored hat, a funny flag and a sore foot. She says, however, that she did not bring a headache.

The many friends of Miss Orene Hastings of the Accounting Department extend their sympathies to her in the loss of her father, who died November 19th. Miss Hastings is secretary to Mr. A. B. Carpenter.

Miss Clyda Weems, of Mr. Walthall's Department and Mrs. Nina Weems of Mr. Durfey's office made a flying trip to San Francisco and vicinity over Armistice Day. Rumor has it that they are interested in a chicken ranch in that vicinity, and that they spent considerable time looking over the prospects of a business venture along those lines.

Mrs. Sybil Smith Down called on her old friends during the month. Before she had the "Down" hitched on to her name Sybil was in the Comptometer Department. We are always glad to see her whenever she comes down from her home at Balch Camp.

Mrs. Grace Helgesen of the Accounting Department spent Armistice Day in Sacramento looking over the political situation and inspecting the dome of the Governor's office.

Mrs. Leslie Dietrich of the Accounting Department is leaving the employ of the Company in a short while to take a rest cure for an indefinite period. Mrs. Dietrich won second prize in the Stock Letter Contest and the effort was apparently too much for her. It is our opinion that her letter was much better than the one Bob DeChaine sent in from Madera, and we don't blame her for being kind of tired about it. However, we are sorry to see her go.

CRANE VALLEY CONSTRUCTION CAMPS

J. H. BRENIG, *Reporter*

The following paragraphs are concerned, mainly, with the efforts of those benighted souls who are engaged in the rather prosaic calling of reconstructing Ditch No. 1 of the Crane Valley conduit system, so bear with us.

The new camp on Ditch No. 1 is perched astride of tunnel number seven, which is, we rise to remark, something new in camp sites. As Nels Petersen so cleverly puts it, "A little something of Mac's own."

Lowell Stephenson of the engineering force, having become the proud possessor of two pink, expensive-looking pasteboards, spent weeks looking forward to the day when Stanford and California entertained at Berkeley.

William ("Bud") Waterman, a student at the Fresno State College and well known to those of us who have survived the

Ditch No. 3 job, was recently bitten by a dog, so a newspaper item has it, while idling between classes. Now, I ask you, where is the justice in that? Bud worked like the proverbial dog all summer so that he might idle between classes, and then, just when he was finding zest in his idling, along comes this dog and bites him. There are those, I dare say, who will insist that he should have been engaged in pruning the campus trees or raking the fallen leaves instead of lolling about the campus. Well, maybe they are right. Still, and at the same time, an accomplished idler is not to be sneezed at.

The estimable Larsen, late timekeeper and commissary commissioner at McCabe's-in-the-Oaks, has gone into winter quarters at Balch-on-the-Kings. With him, sad to relate, has gone that "je ne sais quoi" outlook on life. "Fair eenuf," his invariable response to all suggestions relative to the improvement of the timekeeping and commissary service, indicates his unusual breadth of mind. Then, too, we shall miss his singing. Now in its heyday McCabe's could muster a dozen or more strong singers, ranging all the way from moderato soprano to basso profundo, yet Mr. Larsen's gifted notes, of a highly sentimental turn though they were, made the others to seem steeped in mediocrity. It has been your correspondent's extreme good fortune to have heard him when he was really in voice —technique, color, range and all that sort of thing. Ah, well, Kings . . . your gain —our loss. Treat him well.

A party of "Lizard Chasers," well known along the ditches and led by Charley Price, have been running a traverse of the roads in the vicinity of Kerckhoff Power House and a traverse around Kerckhoff Lake, to say nothing of sleuthing out section corners, the shy, retiring practices of which have proven the undoing of many a promising young S. I. They (the L. Cs.) are at present guests of Power House No. 1, where Jane, hostess extraordinary, holds forth.

Nels Petersen bought a car. It's a "Boo-ick." At least, so Nels assures us. And Andy Smith recently invested in a new machine too. It's a Victrola—pomeranian size.

Bert Keller dropped in at the Ditch No. 1 "hoggery" the other day with a load of hogs. All hailed from Kings River.

SOME QUEER STATISTICS NOT GENERALLY KNOWN

By Batsinis Garrett

LAST YEAR the San Joaquin River carried 13,482,693,127,034¼ Gallons of water from the mountains to the sea.

AN ALARMING number of people who saw it happen didn't know it.

IF ANYONE DID know it they have forgotten it by now.

IF THEY haven't, they should.

F. C. CARROLL, District Manager of the S. J. L. & P. Corp'n. at Corcoran, shaved 363 times last year.

HE LOOKED LIKE the dickens those other two days.

ERNEST WOODS, of the Merced District Sales Department, did exactly the same thing.

BUT YOU COULDN'T TELL the difference.

ERNEST WOULDN'T CARE if you could.

Locating the Pain

Elsie, age 4, was pestering her busy mother with questions until her patience was exhausted, and she said, "Elsie, I want you to go away and play. I am busy and sick in the bargain."

Elsie went, but soon returned and said, "Mother, I am sick, too."

Mother said, "Why, where are you sick?"

Elsie answered, "In the bargain."

Did His Best

A speed maniac who ran head-on into a seven story office building after regaining consciousness weakly murmured, "I blew my horn."

Mixed Tune

"Radio Tune Plan Successful in Part," says a headline. It couldn't have been the part we heard.—*New York Morning Telegraph.*

San Joaquin Light and Power Corporation

A Few Statistics as of June 30, 1923

2,149	employees in all departments—operating and construction.
15,217	bondholders and stockholders.
34,945	square miles in which company operates.
10	counties in Central California served—Mariposa, Merced, Madera, Fresno, Kings, Tulare, Kern, Monterey, San Luis Obispo, Santa Barbara—with a population of 350,000.
63,283	gas, water and electric consumers.
110,467	horsepower developed in 11 hydro-electric plants.
72,066	horsepower developed in 3 steam plants.
182,533	horsepower developed in 14 plants.
497,831,276	kilowatt hours total output of system in 12 months ending June 30, 1923.
632,965,700	cubic feet of natural and manufactured gas sold in 12 months ending June 30, 1923, in 3 cities.
5,500	miles of electric transmission and distribution lines.
165	miles of main used in distribution of gas.
27	miles of main used in distribution of water in two cities.
2	cities supplied with power for electric railways.
16,315,100,000	gallons storage capacity for water used in generating electricity.
2,477,556,400	cubic feet of natural gas and 582 barrels of oil used in generating electricity during 12 months ending June 30, 1923.
62,115	horsepower of agricultural motors depending on San Joaquin Power, irrigating 372,690 acres of land.
46,452	horsepower of industrial motors supplied by San Joaquin Power.
19,031	horsepower of oil well motors operated by San Joaquin Power.
2,397	horsepower of municipal power served by San Joaquin Power.
225,971	horsepower total connected load.
$2,157,880.82	wages paid employees in 1922.
$513,731.89	taxes paid in 1922.